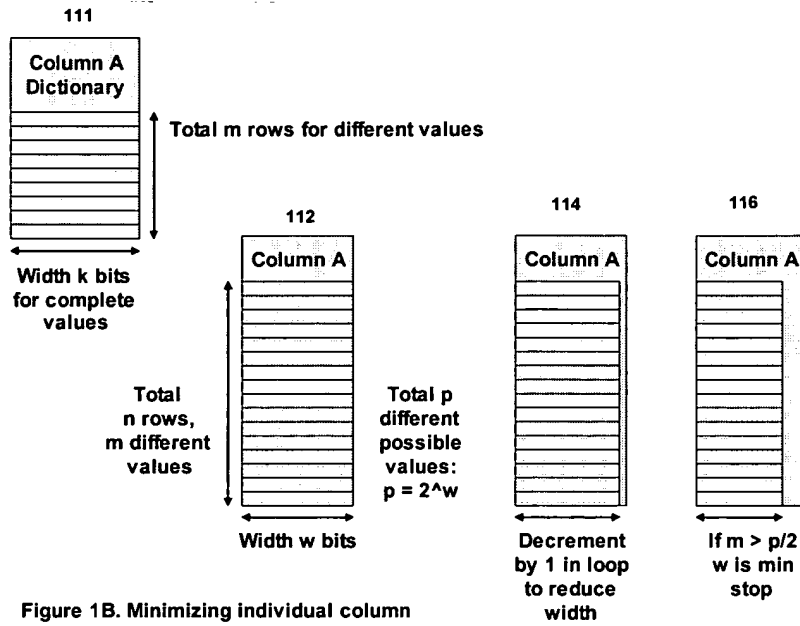
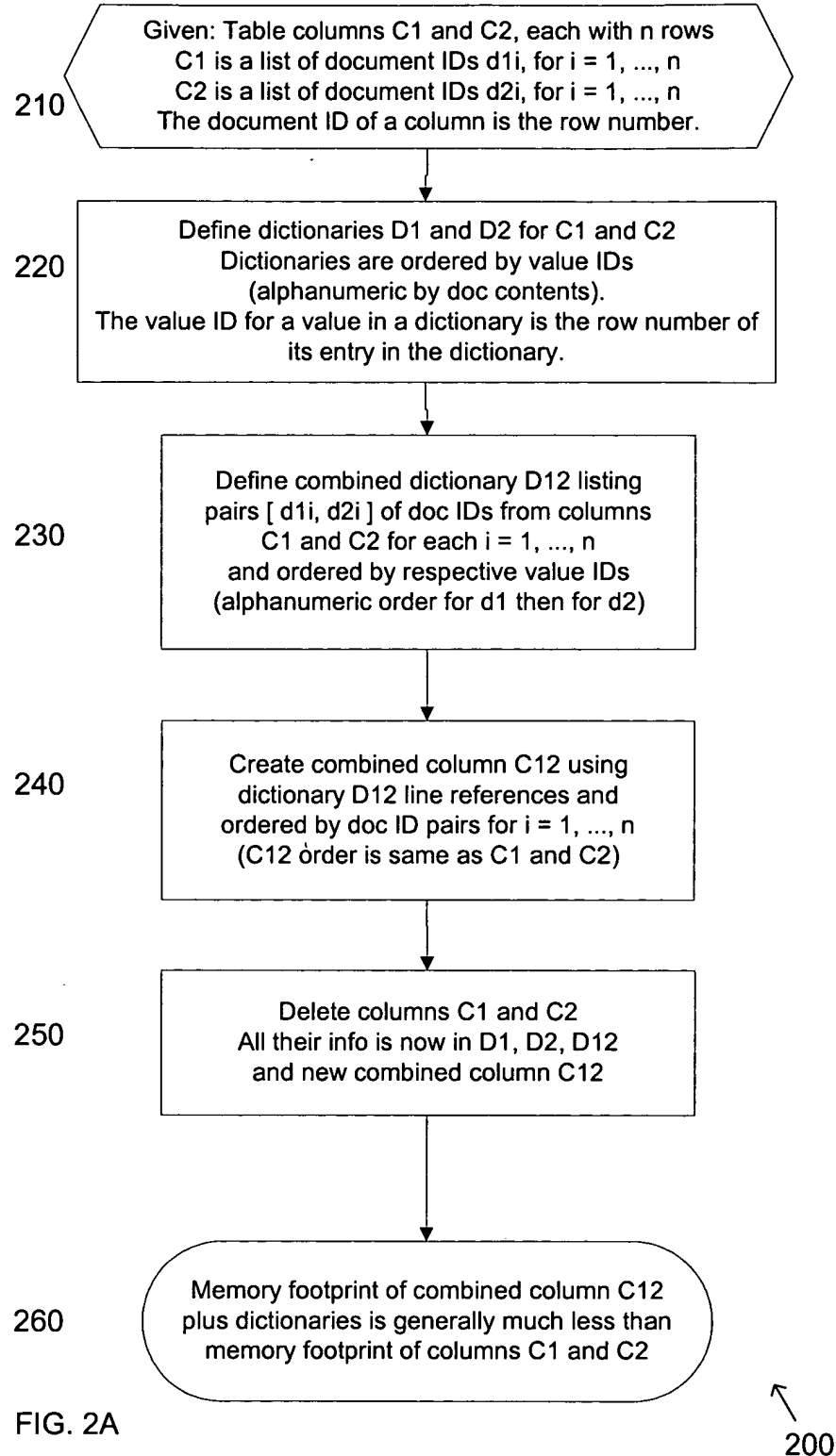


FIG. 1A





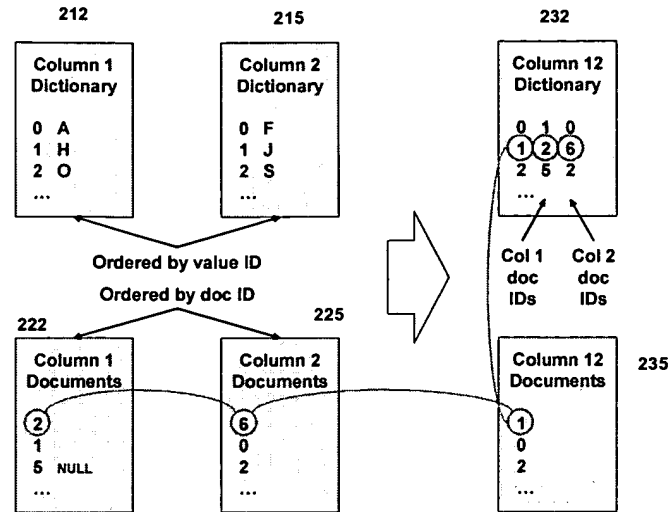


Figure 2B. Combining columns to save space

Memory required (bits) 310	Column 320	Dictionary 330
Original 1 335	$n * w_1$	$m_1 * k_1$
Original 2 340	$n * w_2$	$m_2 * k_2$
Combined 12 (worst case) 345	$n * (w_1 + w_2)$	$m_1 * m_2 * (w_1 + w_2)$
Combined 12 (best case) 350	$n * w_m$	$mm * (w_1 + w_2)$

Key 301	
n	Number of rows in original columns (and in original table)
w_j	Width of column j in bits (minimized as in method 100, Fig. 1A)
m_j	Cardinality of column j (i.e., number of different values in column j)
k_j	Width of widest value in column j in bits (typically, $k_j > w_j$)
mm	Maximum of m_1 and m_2 (i.e., larger of the two values)
w_m	Maximum of w_1 and w_2 (i.e., larger of the two values)

FIG. 3